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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,236	01/14/2005	Shoji Tanigawa	Q82579	9032
23373	7590	08/23/2006	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			NGUYEN, TU T	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 08/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/521,236

Applicant(s)

TANIGAWA ET AL.

Examiner

Tu T. Nguyen

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8 is/are allowed.
- 6) ☒ Claim(s) 9-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 01/14/2005
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9-13 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are:

1) Claim 9 could not perform the method disclosed in claim 1 or 2 because claim 9 does not include any means that can calculate fluctuation of the detected light intensity and any means that can evaluate polarization mode dispersion of the optical fiber.

2) Similarly, claim 12 does not include any means that performs several steps disclosed in claim 1 or 2 such as means for separating the inputted linearly polarized light from backscattered light, etc.

Claims 10-11, 13 are rejected as being depended on a rejected claim.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeshi (JP 2002-048680) in view of Holland (6,504,604) and Leblanc (6,724,469).

With respect to claim 9, Takeshi discloses an apparatus for carrying out the method of measuring polarization mode dispersion in an optical fiber (abstract). The apparatus comprises: a pulse generating device 1 (fig 1); a coupler 3 (fig 1) that inputs pulse light generated by the pulse light generating device 1 (fig 1) into an end of the optical fiber 4 (fig 1), and that outputs backscattered light 200 (fig 1) that has returned through the end of the optical fiber; a photodetector 5 (fig 1) that detects a light intensity of the backscattered light output from the coupler as time series (solution section); an analyzer 6 (fig 1) that analyzes polarization mode dispersion in the optical fiber based on the light intensity of the backscattered light output from the photo detector; and at least one polarizer 2 (fig 1) that polarizes incident light input into the optical fiber and backscattered light output from the optical fiber.

Takeshi does not explicitly disclose a linear incident light. Holland discloses a system for measuring PMD. The system comprises: a linear input polarized light (column 10, lines 25-30). It would have been obvious to modify Takeshi with the linear input polarized light to simplify the calculation as taught by Holland in column 10, lines 27-30. Further the prior arts do not disclose an optical circulator. Leblanc discloses a system for measuring PMD. The system comprises: an optical circulator (column 5, lines 63-64). It would have been obvious to nmodify the prior arts with the optical circulator taught by Leblanc to facilitate the measuring.

With respect to claim 10, Leblanc discloses at least one polarizer 12,18 (fig 1) for polarize the input and output light. Leblanc does not explicitly disclose the polarize lights having the same plane of polarization. However, it would have been obvious a designed choice to modify Leblanc to polarize the lights into linearly polarized light of the same plane of polarization to make the system more accurate.

With respect to claim 11, the prior arts disclose the claimed invention except for a polarization-beam-combiner-type coupler. However, the claimed coupler would have been known. It would have been obvious to modify the prior arts with the claimed coupler to measure different type of fibers.

With respect to claim 12, Takeshi clearly discloses the claimed OTDR 1-7 (fig 1). Refer to discussion in claim 10 for polarizing the input and output lights.

With respect to claim 13, the prior arts disclose the claimed invention except for an optical amplifier. However, it would have been obvious to modify the prior arts by locating an optical amplifier at the position as claimed to amplify the input signal to facilitate the measuring.

***Allowable Subject Matter***

Claims 1-8 are allowed.

As per claims 1,2, the prior arts of record, taken alone or in combination, fail to disclose or render obvious the steps of detecting a light intensity of the backscattered light as time series data since the generation of the pulse light; calculating a fluctuation of the detected light intensity; and evaluating polarization mode dispersion of the optical fiber based on the calculated fluctuation value, in combination with the rest of steps of the claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tu T. Nguyen whose telephone number is (571) 272-2424. The examiner can normally be reached on T-F 7:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Toatley Jr. can be reached on (571) 272-2800 Ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Tu T. Nguyen  
Primary Examiner  
Art Unit 2877

08/15/2006